

# PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of  
Andre BOUILLE

Attorney Docket Q68695

Appln. No.: Not Assigned

PCF/FR01/02151

Confirmation No.: Not Assigned

Group Art Unit: Not Assigned

Filed: March 05, 2002

Examiner: Not Assigned

For: HYBRID CONTACT ROLLER BEARINGS FOR VACUUM PUMP

## PRELIMINARY AMENDMENT

Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

**IN THE CLAIMS:**

**Please cancel claims 1-8 without prejudice or disclaimer.**

**Please add the following new claims:**

9. A landing bearing for a vacuum pump, comprising:

- a rotor ring and a coaxial stator ring defining a roller housing between them; and
- rolling elements housed one after another in the roller housing and rolling on

respective running tracks of the rotor ring and stator ring;

wherein the rolling elements comprise an alternating succession of rolling elements having outside surfaces made of steel and of rolling elements having outside surfaces made of ceramic.

and wherein the ceramic rolling elements are of a diameter which is equal to the diameter of the steel rolling elements under normal operating temperature conditions.

10. A landing bearing according to claim 9, wherein the rolling elements are spherical balls.

11. A landing bearing according to claim 9, wherein the steel rolling elements are made of stainless steel.

12. A landing bearing according to claim 9, wherein the ceramic rolling elements are made of silicon nitride.

13. A landing bearing according to claim 9, wherein the running tracks are made of stainless steel.

14. A vacuum pump including at least one landing mechanical bearing comprising a landing bearing according to claim 1.

15. A vacuum pump according to claim 14, comprising a rotor mounted to rotate in a stator with at least one radial magnetic bearing which, in normal operation, holds the rotor in a radially centered position inside the stator, and with at least one mechanical landing bearing comprising a landing bearing which, in the event of normal operation of the radial magnetic bearings failing, limits radial displacements of the rotor within the stator by ensuring that the rotor remains approximately centered, radial clearance being provided between one of the rotor ring or stator ring and the corresponding bearing surface of the rotor or of the stator.

Preliminary Amendment  
Attorney Docket Q68695

**REMARKS**

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,



David J. Cushing  
Registration No. 28,703

SUGHRUE MION, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, D.C. 20037-3213  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

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**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**Claims 1-8 are cancelled**

**Claims 9-15 are added as new claims.**

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